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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/321,967	05/28/1999	RICHARD L. FRANK	ORA99-09(OID)	7319

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EXAMINER

ZHEN, LI B

ART UNIT PAPER NUMBER

2126

DATE MAILED: 01/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/321,967

Applicant(s)

FRANK ET AL.

Examiner

Li B. Zhen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 1999.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2, 5, 6, 12 – 14, 17, and 18 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent No. 6,192,401 to Modiri.

As to claim 12, Modiri teaches (column 2, lines 20 – 45) a figure of merit (weighting value to each node) indicating a value for a member node to continue operation (base cluster membership upon weighting factor...by favoring most valued nodes). As to querying an application program, Modiri teaches that the method of determining a figure of merit may be implemented in software (column 2, lines 60 – 62). Modiri teaches that the cluster management software (software layer 250) and an application program (software modules in layer 220) determine a node's value (the software modules in layers 220 and 250 are responsible for determining the membership in the cluster; column 6, lines 30 – 35) and the cluster framework 220

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includes modules such as the Cluster membership and quorum and reconfiguration 224 that provides reconfiguration decision making (column 4, lines 50 – 67).

As to claims 1 and 13, Modiri teaches (column 2, lines 20 – 45) a management program (cluster management software, software layer 250, Fig. 2), an application program (software modules in layer 220, Fig. 2; column 6, lines 30 – 35) determining a figure of merit (the software modules in layers 220 and 250 are responsible for determining the membership in the cluster; column 6, lines 30 – 35) indicating a value for a member node to continue operation (base cluster membership upon weighting factor...by favoring most valued nodes).

As to claims 2 and 14, Modiri teaches (column 2, lines 40 – 46) assessing merit criteria for the member node to determine figure of merit (weighting value may be based upon various factors).

As to claims 5 and 17, Modiri teaches (column 6, lines 45 – 50) a proposed figure of merit (static weight is set by configuration).

As to claims 6 and 18, Modiri teaches (column 6, lines 45 – 60; column 8, lines 47 – 61) selecting between the proposed figure of merit (static weight) and an alternate figure of merit (dynamic weight).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4, 15, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiri in view of U.S. Patent No. 5,325,526 to Cameron.

As to claims 3 and 15, Modiri teaches (column 2, lines 40 – 46) the figure of merit may be based upon various factors such as relative processing power of the node, amount of physical memory, etc. However Modiri does not disclose using execution priority of an application to determine figure of merit.

However, Cameron teaches (column 11, lines 1 – 6) that figure of merit (partition priority) can be associated with application priority.

It would have been obvious to apply associating application priority with figure of merit as taught by Cameron to the invention of Modiri because using application priority to determine the importance of a partition to continue operating would insure that applications with high priority would continue processing.

As to claims 4 and 16, Modiri teaches (column 2, lines 40 – 46) the figure of merit may be based upon various factors such as relative processing power of the node, but does not specify determining the number of users executing from the node.

However, Cameron teaches (column 9, lines 22 – 37) determining (manage) the number of users (a list of consumers) executing from the node (using the nodes of a partition).

It would have been obvious to apply determining the number of users executing from the node as taught by Cameron to the invention of Modiri because the number of users executing on the node would determine the processing load of each node.

As to claim 19, this is a combination of claims 1 – 6; see the rejections to claims 1 – 6 above.

5. Claims 7 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiri in view of U.S. Patent No. 5,999,712 to Moiin.

As to claim 7, this is the same as claim 1 with the addition of evaluating node figure of merit to determine partition figure of merit, selecting a cluster partition to operate as network cluster in response to partition figure of merit, and halting the operation of the remaining cluster partitions. Modiri teaches (column 8, lines 43 – 61) evaluating node figure of merit (computer nodes 310A and 310B have weighting values of ten and three, Fig. 3A) to determine partition (subset 330A, Fig. 3A) figure of merit (subset 330A computer nodes 310A and 310B have weighting values of ten and three...from straight addition of the weighting values of the subsets, subset 330A has a configuration values of thirteen, Fig. 3A). Modiri teaches determining partition figure of merit (column 8, lines 48 – 61) and selecting the partition based on the partition figure of merit (if the maximum configuration value is the selection criterion, then subset 330A will become the reconfigured cluster. Modiri does not specify halting the operation of the remaining cluster partitions.

However, Moiin teaches (column 13, lines 15 – 22) halting the operation of the remaining cluster partitions (issue command pdbadm stopnode to one set of nodes).

It would have been obvious to apply halting the operation of the remaining cluster partitions as taught by Moiin to the invention of Modiri because it would prevent the

remaining clusters from corrupting data and files that belongs to the selected partition cluster.

As to claim 8, see the rejection of claim 5 above.

As to claim 9, see the rejection of claim 6 above.

6. Claims 10, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiri and Moiin in view of Cameron.

As to claim 10, Modiri teaches (column 2, lines 40 – 46) the figure of merit may be based upon various factors such as relative processing power of the node, amount of physical memory, etc. Modiri as modified by Moiin does not disclose using execution priority of an application to determine figure of merit.

However, Cameron teaches (column 11, lines 1 – 6) that figure of merit (partition priority) can be associated with application priority.

It would have been obvious to apply associating application priority with figure of merit as taught by Cameron to the invention of Modiri as modified by Moiin because using application priority to determine the importance of a partition to continue operating would insure that applications with high priorities would continue processing.

As to claims 11, Modiri teaches (column 2, lines 40 – 46) the figure of merit may be based upon various factors such as relative processing power of the node, but does not specify determining the number of users executing from the node.

However, Cameron teaches (column 9, lines 22 – 37) determining (manage) the number of users (a list of consumers) executing from the node (using the nodes of a partition).

It would have been obvious to apply determining the number of users executing from the node as taught by Cameron to the invention of Modiri as modified by Moiin because the number of users executing on the node would determine the processing load of each node.

As to claim 20, this is a combination of method claims 7 – 11; see the rejections to claims 7 – 11 above.

7. Claims 1, 2, 5 – 9, 12 – 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,999,712 to Moiin.

As to claim 12, Moiin teaches (column 3, lines 10 – 20; column 4, lines 20 – 40; column 6, lines 35 – 45; column 11, lines 59 – 67) querying (send RECONF_msg to each node) and application (function membership_proposal()) for a figure of merit (data representing the optimal new cluster) to determine cluster membership. As to the figure of merit indicating a value for a member node to continue processing, each node broadcasts data representing the optimal new cluster. Therefore, when a node includes itself in the new optimal cluster data, it in effect provides a value to indicate for it to continue processing.

As to claims 1 and 13, this is a method claim that corresponds to product claim 12 with the additional limitation of a management program (CMM, cluster communication monitor; column 3, lines 10 – 20 of Moiin).

As to claim 7, this is the same as claim 1 with the addition of evaluating node figure of merit to determine partition figure of merit, selecting a cluster partition to operate as network cluster in response to partition figure of merit, and halting operation

of the remaining clusters. Moiin teaches (column 4, lines 30 – 35; column 13, lines 15 – 22) selecting a cluster partition to operate as network cluster in response to partition figure of merit (the new cluster represented by more proposed new clusters than any other is elected as the new cluster) and halting the operation of the clusters that was not chosen (issue command pdbadm stopnode to one set of nodes).

As to claims 2 and 14, Moiin teaches (column 6, lines 57 – 67; column 7, lines 1 – 7) assessing merit criteria for the member node to determine figure of merit (above set of rules defines an optimal membership set).

As to claims 5, 8, and 17, Moiin teaches (column 4, lines 25 – 30) a proposed figure of merit (data representing proposed new cluster).

As to claims 6, 9, and 18, Moiin teaches (column 11, lines 60 – 67; column 12, lines 48 – 66) selecting between the proposed figure of merit (compare the proposed set from the other nodes) and an alternate figure of merit (find optimal subset of M_i^{prop}).

8. Claims 3, 4, 10, 11, 15, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moiin in view of U.S. Patent No. 5,325,526 to Cameron.

As to claims 3, 10, and 15, Moiin does not teach using execution priority of an application to determine figure of merit.

However, Cameron teaches (column 11, lines 1 – 6) that figure of merit (partition priority) can be associated with application priority.

It would have been obvious to apply associating application priority with figure of merit as taught by Cameron to the invention of Moiin because using application priority

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to determine the importance of a partition to continue operating would insure that applications with high priorities would continue processing.

As to claims 4, 11, and 16, Moiin does not teach determining the number of users executing from the node.

However, Cameron teaches (column 9, lines 22 – 37) determining (manage) the number of users (a list of consumers) executing from the node (using the nodes of a partition).

It would have been obvious to apply determining the number of users executing from the node as taught by Cameron to the invention of Moiin because the number of users executing on the node would determine the processing load of each node.

As to claim 19, this is a combination of claims 1 – 6; see the rejections to claims 1 – 6 above.

As to claim 20, this is a combination of method claims 7 – 11; see the rejections to claims 7 – 11 above.

Response to Arguments

9. Applicant argues (p. 9, lines 9 – 10, 13 – 16, and 23 – 27; p. 12, lines 22 – 28; p. 13, lines 4 – 15) “...Modiri does not discuss the Applicants’ claimed limitation of querying an application program that is executing on a partitioned network cluster...Modiri does not suggest that an application program is executing at all when the management software is determining a node’s value...Instead, Modiri teaches that cluster management software determines a node’s value.” The examiner respectfully disagrees because Modiri clearly teaches that the cluster management software

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(software layer 250) and an application program (software modules in layer 220) determine a node's value (the software modules in layers 220 and 250 are responsible for determining the membership in the cluster; column 6, lines 30 – 35). For example, Modiri teaches (column 4, lines 50 – 67) the cluster framework 220 includes the Cluster membership and quorum and reconfiguration 224 provides reconfiguration decision making. Although the cluster management software assigns the value, the value is based on data provided by software modules in layer 220 (the cluster system software... determines the membership list for the cluster based on data including communications availability; column 6, lines 25 – 35). The cluster connectivity module 222 provides the communication availability data, which is a software module in layer 220 (Fig. 2; column 4, lines 50 – 60).

The applicant argues (p. 10, lines 1 – 6) “there is no suggestion in Modiri that its cluster management software is the same as the Applicant's claimed application program executing on a partitioned network cluster.” The examiner respectfully disagrees because the “software modules in layer 220” of Modiri corresponds to “application program executing on a partitioned network cluster” of the applicants' invention (see rejection and response above). In addition, the limitation “application program executing on a partitioned network cluster” is broad enough that it would correspond to any software executing on a network cluster that provides data to determine a node's value. In fact, the applicant suggested the broadness of the limitation by stating “Although, Modiri's data service module (240) is not exactly the same as the Applicants' claimed application executing on the partitioned network

cluster, Modiri's data service module can arguably be considered an application program layer" (p. 10, lines 12 – 18). Therefore, the limitation "application program executing on a partitioned network cluster," as claimed, is met by the "software modules in layer 220" of Modiri because the software modules in layer 220 provides data to the cluster system software in the membership determination process (column 6, lines 25 – 35).

The applicant argues (p. 12, line 26 – p. 13, line 3) "...Moiin does not teach anything about querying an application program for a figure of merit. Instead, Moiin determines node membership by a quorum of nodes" but fails to explain why the mappings of the examiner's rejection based on Moiin does not meet this limitation.

Moiin teaches (column 3, lines 10 – 20; column 4, lines 20 – 40; column 6, lines 35 – 45; column 11, lines 59 – 67) querying (send RECONF_msg to each node) an application (function membership_proposal()) for a figure of merit (data representing the optimal new cluster) to determine cluster membership. As to the figure of merit indicating a value for a member node to continue processing, each node broadcasts data representing the optimal new cluster. Therefore, when a node includes itself in the new optimal cluster data, it in effect provides a value to indicate for it to continue processing.

Applicant argues (p. 14, lines 7 – 14 and 20 – 25) "neither references discloses or suggests the Applicant's claimed evaluating of a partition figure of merit for each cluster partition... Modiri's values relate to node membership and not to the value of a partition... Moiin, on the other hand, does not even relate to evaluating a partition figure

of merit...” The examiner respectfully disagrees because both Modiri and Moin disclose evaluating a partition figure of merit for each cluster partition. Modiri teaches (column 8, lines 43 – 61) evaluating node figure of merit (computer nodes 310A and 310B have weighting values of ten and three, Fig. 3A) to determine partition (subset 330A, Fig. 3A) figure of merit (subset 330A computer nodes 310A and 310B have weighting values of ten and three...from straight addition of the weighting values of the subsets, subset 330A has a configuration values of thirteen, Fig. 3A). Modiri clearly teaches determining partition figure of merit (column 8, lines 48 – 61) and selecting the partition based on the partition figure of merit (if the maximum configuration value is the selection criterion, then subset 330A will become the reconfigured cluster). In addition, Moin teaches (column 4, lines 30 – 35; column 13, lines 15 – 22) selecting a new cluster partition to operate (the new cluster) based on a partition figure of merit (the cluster that is more proposed than any other is elected as the new cluster). A cluster that is more proposed than any other means the cluster has a higher figure of merit than the other clusters. Moin’s partition figure of merit is measured by the number of times a cluster is proposed. Therefore, Moin teaches selecting a cluster partition to operate as network cluster in response to partition figure of merit (the new cluster represented by more proposed new clusters than any other is elected as the new cluster).

The applicant argues (p. 15, lines 5 – 10 and 15 – 18) “...Cameron does not relate to partitioned network clusters...Cameron neither teaches or suggests the Applicant’s claimed merit criteria for a member node...” The examiner respectfully disagrees because the Cameron reference was used to show the teaching of

determining merit based on application priority. The combination of Modiri and Cameron teaches determining figure of merit base on application program's execution priority, and the applicant fails to explain why the combination of Modiri and Cameron does not meet the limitation of claims 3 and 4.

Applicant argues (p. 15, lines 25 – 27 and p. 16, lines 1 – 4) “Modiri does not disclose determining a number of users executing the application program...” The examiner agrees with the argument; however, the examiner relied on the combination of Modiri and Cameron to meet claims 3 and 4 (see the rejection), and the applicant fails to explain why the combination of Modiri and Cameron does not meet the limitation of claims 3 and 4.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (703) 305-3406.

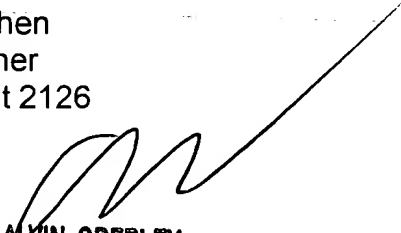
The examiner can normally be reached on Mon - Fri, 8am - 4:30pm.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

lbz
December 24, 2002

Li B. Zhen
Examiner
Art Unit 2126



ALVIN OBERLEY
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